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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,899	11/18/2003	Kazuhisa Kimura	03685/LH	7055
1933	7590	08/25/2005	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC			HSIEH, SHIH WEN	
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2861

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,899

Applicant(s)

KIMURA, KAZUHISA

Examiner

Shih-wen Hsieh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 and 15-20 is/are rejected.
7) ☒ Claim(s) 13 and 14 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ① 7-26-05 ② 3-9-05 ③ 10-12-04 ④ 7-27-04 ⑤ 5-24-04 ⑥ 5-19-04
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date. _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 8, line 2, please change "convaying" into "conveying".

Page 8, lines 20-21, please change "for controlling the feed pressure of ink to be supplied to the ink feed mechanism 17" into "for controlling the feed pressure of ink to be supplied from the ink feed mechanism 17" or into "for controlling the feed pressure of ink to be supplied to the ink jet recording head 15".

Page 9, line 1, please change "to the ink feed mechanism 17" into "from the ink feed mechanism 17".

Page 9, line 3, please delete "14" after "pressure chamber". Because "14" stands for nozzles.

Page 16, lines 15-16, these two lines describes wiping is from left to right in fig.

2). Now, please looking to page 17 of the specification. Line 10+ describes when the wipe support member 23 is moved to the end position, the cam 35 is driven to move the tip of the wiping member 22a into contact with the nozzle plate 20. These lines describe a wiping operation is from right to left, a situation, which is in contrary to those shown in fig. 2. However, Page 16, lines 20 describes the wiping could be from right to left, Examiner thought it is better to match the contents with drawing, i.e., cam 35 is rotated

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to protrude wiper 22a at home position, where sensor 36 is disposed. Then the wiping situation is as shown in fig .2, i.e., from left to right.

Claim Objections

2. Claim 1 is objected to because of the following informalities:

Partial of **original** of claim 1 is:

An ink jet recording head maintenance apparatus, comprising:

a plurality of wiping members which have a nozzle face formed with nozzles, and wipe the nozzle face of the ink jet recording head for ejecting ink in a form of drops of from the nozzles, and at least one of which differs in a wiping force to be applied to the nozzle face.

Please note the underlined portion above, which has nothing to do with its antecedent:--- "plurality of wiping member". Actually, "a nozzle face formed with nozzles" is related to the ink jet recording head. So, "An ink jet recording head, which has a nozzle face formed with nozzles" is a better recitation.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As shown in fig.2, the pressing mechanism (31=34+35) is just one. Also Page 15 of the specification, line 3 describes "a hole 27b is provided to allow the insertion of the pressing member 34". Examiner thought, in order for the selection of the wiper members (22a, 22b and 22c), each wiper should have a hole (27b) underneath itself so as to allow the pressing member 34 to insert into the respective hole to press the being selected wiper outward toward the nozzle face. Therefore a plurality of holes (27b) is more proper, Examiner presumes, while just one pressing member (34) is enough.

Please explain.

Claim 18 depends on claim 4 and is also rejected.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 7, 8, 12 and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Shindo (US Pat. No. 6,631,974 B2).

In regard to:

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Claim 1:

Shindo teaches:

An ink jet recording head maintenance apparatus, comprising:

a plurality of wiping members (52 and 53, figs. 7B, 9 and 10) which have a nozzle face (24a, figs. 5, 6, 9 and 10) formed with nozzles (54, figs. 2 and 3), and wipe the nozzle face of the ink jet recording head for ejecting ink in a form of drops of ink from the nozzles, and at least one of which differs in a wiping force to be applied to the nozzle face, refer to col. 6, line 7 to col. 7, line 63, please note: col. 7, line 46 and line 51-52 describes the different wiping force;

a wiping member selecting means [projection (not shown), refer to col. 6, lines 23-24, and 63 (fig. 8, cam groove) and 60 (fig. 8, cam plate)] for selecting the optimum wiping member for wiping the nozzle face, from among the plurality of wiping members, refer to col. 6, line 18 to col. 7, line 63 and also figs. 9 and 10, in which, fig. 9 is the selection of wiper 52 only, and fig. 10 is the selection of wipers 52 and 53; and

a wiping mechanism (51, figs. 5, 6, 8, 9 and 10) for wiping the nozzle face by the optimum wiping member selected by the wiping member selecting means, refer to col. 6, line 7 to col. 7, line 63.

Claim 7:

An ink jet recording head maintenance apparatus according to claim 1, wherein the plurality of wiping members are so formed as to be different in the wiping force against the nozzle face.

Rejection:

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This claim is rejected on the basis as set forth for claim 1 discussed above.

Claim 8:

An ink jet recording head maintenance apparatus according to claim 1, wherein the plurality of wiping members are formed of an elastic material.

Rejection:

Please refer to figs. 9 and 10 for elastic material, i.e., figs. 9 and 10 show the wiper is bend in contacting with the nozzle face. That means the plurality of wiping members are formed of an elastic material. Because elastic material is able to be bend as that shown in figs. 9 and 10.

Claim 12:

Shindo further teaches:

Wherein the wiping member selecting means selects the optimum wiping member in accordance with an elapsed time after the execution of preceding wiping operation, refer to col. 6, line 60 to col. 7, line 22.

Claim 15:

Shindo further teaches:

An ink jet recording apparatus, comprising:

a conveying mechanism for conveying a recording medium, refer to col. 3, line 63 to col. 4, line 4;

an ink jet recording head (24) having a nozzle face (24a) formed with nozzles (54), and ejecting ink from the nozzles to the recording medium being conveyed by the conveying mechanism, refer to col. 3, line 63 to col. 4, line 4;

a control section (not shown in Shindo's invention, however, such a control section is generally a controller or a CPU or a microprocessor and is an inherent part in an ink jet printer) for driving to control the conveying mechanism and the ink jet recording head in accordance with a printing data; and

the ink jet recording head maintenance apparatus (50) according to claim 1.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 3, 5, 6, 10, 11, 16, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shindo in view of Anderson et al. (US Pat. No. 5,534,897).

In regard to:

Claim 2:

Shindo further teaches:

wherein the wiping mechanism includes:

a wipe support member (58, figs. 5 and 8) supporting the plurality of wiping members.

The device of Shindo DIFFERS from claim 2 in that it does not teach:

a moving mechanism supporting the wipe support member to be movable along the nozzle face, and moving the wipe support member thus supported, along the nozzle face.

In Shindo's case, the wipe member stays stationary, while the carriage mounted with the print head moves back and forth so as to be wiped by the wipe member. However, wiping action is a relative motion between the head and the wiper. Therefore, keeping the head stationary, while moving the wiper is another option to fulfill the wiping action. Based on this, Anderson et al. teach in their fig. 5 a wiping scheme, in which, the head assembly (14, provided in frame 12) returns to a maintenance position as most prior art do. Then a wiper (48) supported by maintenance carriage assembly (16, corresponding to the wiper support member in the instant application) is moved across a face of the head by a rotation of a lead screw (24), which is rotated by a stepper motor (28, fig. 6) so as to wipe clean the nozzle face of the head, refer to col. 5, lines 32-40.

Therefore, Anderson et al.'s concept of wiping can be used in Shindo's case, providing Anderson et al.'s wiping scheme in their fig. 5 is incorporated into Shindo wiping scheme. Under this circumstances, once the Shindo's print head returns to the home position, it just stays there without further movement, then Shindo's wiper after selection will move based on Anderson et al.'s concept across the face of the head to clean the face of the head, and the cleaning result will be carried out equally as being modified before.

Shindo further teaches:

a positioning mechanism for positioning the optimum wiping member selected by the wiping member selecting means, in a contact position in which the optimum wiping member comes into contact with the nozzle face in such a state that the wipe support member is being moved along the nozzle face by the moving mechanism. Note:

this portion is rejection as being given to the "wiping selection means" discussed above. Because the coordination among the CPU, the rotation of the motor gear (69, fig. 8), the projection, the cam groove and the cam plate will position the right wiper in contact with the nozzle face.

Claim 3:

An ink jet recording head maintenance apparatus according to claim 2, wherein the positioning mechanism includes:

a wiping member moving mechanism for moving the optimum wiping member to a predetermined pressing position; and

a pressing mechanism for pressing, toward the contact position, the optimum wiping member moved to a predetermined pressing position by the wiping member moving mechanism.

Rejection:

This claim is rejected on the basis as set forth for claims 1 and 2 discussed above. Because fig. 8 of Shindo teaches all of above, i.e., wiping member moving mechanism is obvious. Pressing mechanism can be seen as cam groove (63). Because when the cam groove rotates, the projection on the wiper holder travels in the groove so as to raise in a direction "A" as indicated in fig. 9. This is a pressing action.

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Claim 5:

An ink jet recording head maintenance apparatus according to claim 2, wherein the plurality of wiping members have, at their tip, an edge portion along a direction intersecting the direction of movement; and

the positioning mechanism positions the optimum wiping member in the contact position so that the edge portion of the optimum wiping member will come into contact with the nozzle face.

Rejection:

Wiper usually in a shape of rectangular and vertically erected blade and obviously has an edge at its tip and along a direction intersecting the direction of movement, refer to MPEP 2144.03, In re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942).

The positioning mechanism positions portion of this claim is rejected on the basis as set forth for claims 1 and 2 discussed above.

Claim 6:

An ink jet recording head maintenance apparatus according to claim 5, wherein the plurality of wiping members are formed of an elastic material; and

the positioning mechanism positions the optimum wiping member in the contact position so that its edge portion may be pressed against the nozzle face by the elastic force of the optimum wiping member.

Rejection:

Please refer to figs. 9 and 10 for the flexibility of the wiping member.

Claim 10:

The device of Shindo DIFFERS from claim 10 in that it does not teach:

An inkjet recording head maintenance apparatus according to claim 2, wherein the plurality of wiping members are removably formed in relation to the wipe support member.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to fabricate the wipers separately from their support, and then install onto the support, since it has been held that constructing a formerly integral structure (i.e., mold the support and the wipers as one body) in various elements involves only routine skill in the art, refer to MPEP 2144.04 V C.

Claim 11:

The device of Shindo DIFFERS from claim 11 in that it does not teach:

wherein the wipe support member are removably formed in relation to the moving mechanism.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to fabricate the wiper support separately from its moving mechanism, and then assembly together, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art, refer to MPEP 2144.04 V C.

Claim 16:

An ink jet recording apparatus, comprising:

a conveying mechanism for conveying a recording medium;

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an ink jet recording head having a nozzle face formed with nozzles, and ejecting ink from the nozzles to the recording medium being conveyed by the conveying mechanism;

a control section for driving to control the conveying mechanism and the ink recording head in accordance with printing data; and

an ink jet recording head maintenance apparatus according to claim 2.

Rejection:

This claim is rejected on the basis as set forth for claim 1, 2 and 15 discussed above.

Claim 17:

An ink jet recording apparatus, comprising:

a conveying mechanism for conveying a recording medium;

an ink jet recording head having a nozzle face formed with nozzles, and ejecting ink from the nozzles to the recording medium being conveyed by the conveying mechanism;

a control section for driving to control the conveying mechanism and the ink recording head in accordance with a printing data; and

an ink jet recording head maintenance apparatus according to claim 3.

Rejection:

This claim is rejected on the basis as set forth for claim 1, 2, 3 and 15 discussed above.

Claim 19:

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An ink jet recording apparatus, comprising:

a conveying mechanism for conveying a recording medium;

an ink jet recording head having a nozzle face formed with nozzles, and ejecting ink from the nozzles to the recording medium being conveyed by the conveying mechanism;

a control section for driving to control the conveying mechanism and the ink jet recording head in accordance with a printing data; and

an ink jet recording head maintenance apparatus according to claim 5.

Rejection:

This claim is rejected on the basis as set forth for claim 1, 2, 5 and 15 discussed above.

Claim 20:

An ink jet recording apparatus, comprising:

a conveying mechanism for conveying a recording medium;

an ink jet recording head having a nozzle face formed with nozzles, and ejecting ink from the nozzles to the recording medium being conveyed by the conveying mechanism;

a control section for driving to control the conveying mechanism and the ink jet recording head in accordance with a printing data; and

an ink jet recording head maintenance apparatus according to claim 6.

Rejection:

This claim is rejected on the basis as set forth for claim 1, 2, 5, 6 and 15 discussed above.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shindo.

In regard to:

Claim 9:

The device of Shindo DIFFERS from claim 9 in that it does not teach:

wherein the plurality of wiping members are formed of porous material.

A wiper uses porous material is well known in the art, refer to MPEP 2144.03, In re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942).

Also, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to select a known material as the material of the wiper such as a porous material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use, refer to MPEP 2144.07.

Allowable Subject Matter

10. Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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11. The following is a statement of reasons for the indication of allowable subject matter:

In regard to:

Claim 13:

The primary reason for the allowance of claim 13 is the inclusion of the limitation of wherein the wiping member selecting means selects the optimum wiping member in accordance with an environmental history after the execution of the preceding wiping operation. It is this limitation found in this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 14:

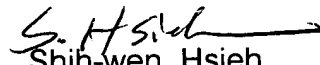
The primary reason for the allowance of claim 14 is the inclusion of the limitation of wherein the wiping member selecting means selects the optimum wiping member in accordance with the number of counts of printed sheets after the execution of the preceding wiping operation. It is this limitation found in this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHIH-WEN HSIEH
PRIMARY EXAMINER


Shih-wen Hsieh
Primary Examiner
Art Unit 2861

SWH

Aug. 23, 2005